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REMARKS/ARGUMENTS

Claims 1 through 4, 7 through 12, 38, 39, 41 and through 54 stand rejected in the outstanding Official Action. Claims 1, 2, 4, 53 and 54 have been amended and newly written claim 55 submitted for consideration. Therefore claims 1 through 4, 7 through 12, 38, 39, and 41 through 55 are the only claims remaining in this application.

The Examiner's indication of acceptance of the drawings submitted November 8, 2001 is very much appreciated.

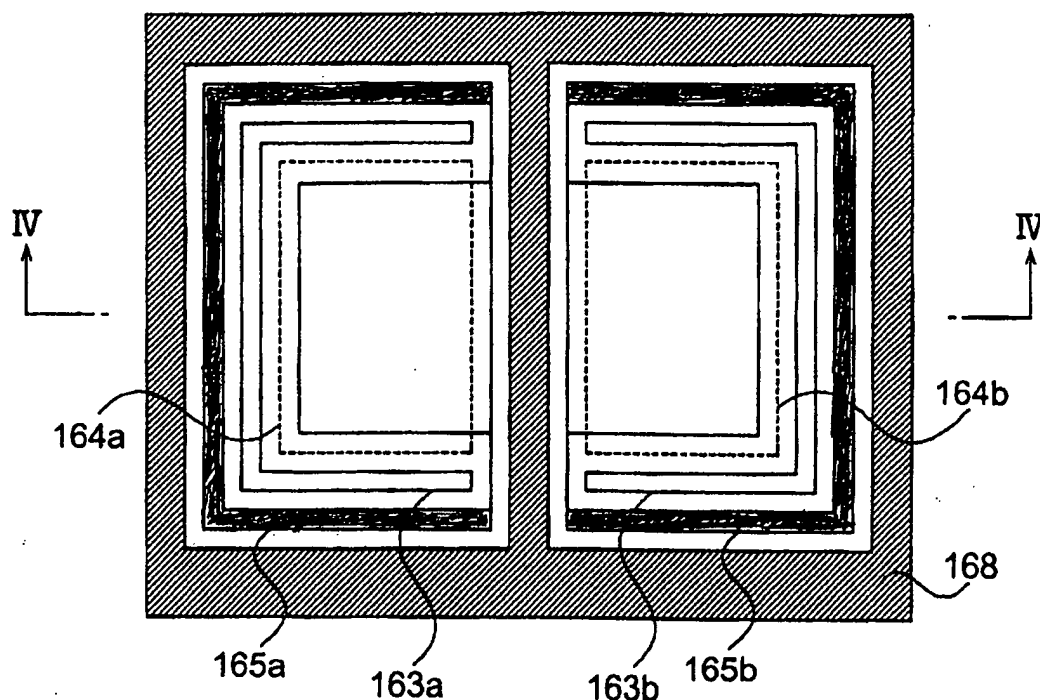
Claims 1, 7, 51, 52 and 53 stand rejected under 35 U.S.C. 103 as being unpatentable over Sahara et al (U.S. Patent 6,392,282). Specifically the Examiner admits that Sahara in Figure 13B fails to teach "a deposited epitaxial layer supported by said CMOS component." The Examiner suggests that Figure 8B of Sahara teaches this missing component and that it would be obvious to combine the teachings of Figures 8 and 8B and 13B.

Additionally, the Examiner admits that in Sahara Figure 13B layer 164 "is not a deposited epitaxial layer." This admission is very much appreciated as well. Given this admission it would appear clear that Figure 13B of Sahara teaches away from "a deposited epitaxial layer." Finally in the rejection the Examiner states that claim language "is merely the functional language and thus is not given a patentable weight."

Applicants independent claim 1 and all other independent claims specify a "readout circuit" which has a "guard ring delimiting and surrounding the photodiode detector for enhancing electric field uniformity and inhibiting breakdown." The

Examiner apparently has ignored this claim limitation in his assessment of the Sahara reference. As can clearly be seen below, Figure 13A does not teach applicants' claimed guard ring, i.e. does not teach a guard ring "surrounding the photodiode detector" as required by the independent claims. The Sahara guard rings have been darkened and are shown in the below image

Fig. 13A PRIOR ART



While Sahara does discuss its guard rings 165a and 165b (at column 23, lines 1 through 6) a review of Figure 13A shows that those guard rings do not "surround" the "photodiode detector". The definition of "surrounds" is "to enclose on all sides."

(Webster's 9th New Collegiate Dictionary at page 1188 a copy attached) as can clearly be seen in the above image neither guard ring 165a nor guard ring 165b encloses a photodetector on all sides. At best the Sahara guard rings covers only three sides of a photodetector - and even if the two photodetectors shown in Figure 13A were considered to be a single photodetector - the two separate guard rings do not enclose on all sides the two photodetectors. As a result the Examiner's assumption that Sahara in Figures 13A and 13B teaches applicants' claimed guard ring is simply incorrect and comprises a fatal flaw in the Examiner's obviousness argument.

Additionally the Examiner apparently fails to realize that Figure 13A is a reference to "prior art." Figures 8A and 8B in Sahara disclose an embodiment of the claimed invention. Applicants undersigned representative knows of no case law or prior art construction or decision by the Board of Appeals for the Federal Circuit which permits an Examiner to combine features of an invention with features from the prior art of which that invention distinguishes over.

In other words Sahara's Figure 13A would tend to lead one of ordinary skill in the art away from the combination of elements disclosed in Figures 8A and 8B which comprise the claimed invention. The Examiner has not explained how or why there would be any reason or motivation for one of ordinary skill in the art to modify Figure 8B in the manner of prior art as shown in Figure 13B of Sahara. Thus the rejection under 35 U.S.C. §103 clearly fails for lack of disclosure of any reason or motivation for combining

the two distinct concepts, i.e. the patentable Figure 8B and the prior art Figure 13B, even if they would be compatible if combined.

Additionally, the Examiner's admission in Figure 13B layer 164 is "not an epitaxial layer" is particularly telling. Layers 164a and 164b appear to be diffusion layers which would lead one of ordinary skill in the art away from the use of a deposited epitaxial layer. Again even if one were to combine features of Sahara's Figure 8B and Sahara's Figure 13B, there is no indication of why would one substitute a deposited epitaxial layer for Figure 13B's disclosed apparent diffusion layer. There is simply no teaching or suggestion.

Finally, the Examiner admits that he has given no patentable weight to the claim limitation "gradual knee in a current voltage characteristic." The Examiner is reminded that all claim language must be given patentable weight regardless of the Examiner's personal beliefs regarding "functionality." It is noted that the Manual of Patent Examining Procedure (MPEP) at §2173.05(g) states that "a functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used." Thus the Examiner has no freedom to ignore claim limitations.

However, Applicant has amended claim 1 to specify that the readout circuit and the epitaxial layer are adapted to provide the claimed "gradual knee in a current voltage characteristic." This language more closely approximates the "adapted" language which has been specifically approved by the above noted MPEP section to define structural

characteristics of inter related components of the claimed assembly. Should the Examiner fail to give patentable weight to this limitation as amended in claim 1 and as currently present in other independent claims, this failure is believed a clear basis for appeal.

In view of the above the independent claims including claim 1 are believed to clearly and positively recite a combination of structures and a series of method steps which are not shown, especially in view of the Examiner's admissions, in the Sahara reference taken as a whole. While individual elements may appear to be disclosed in various figures of the Sahara reference there is no teaching or suggestion or reason for one of ordinary skill in the art to combine them in the manner or with the method claimed in applicants' pending claims. Accordingly, any further rejection of claims 1, 7, 51, 52 and 53 is respectfully traversed.

Inasmuch as all other claims depend from claim 1 or the other independent claims discussed above, they are believed patentable in view thereof. The Examiner's rejections of each of the dependent claims is based solely upon the combinations of Figures 13B and 8B of the Sahara reference when combined with other references. However, since there is no basis for combining these contradictory figures in the Sahara reference, there can be no basis for any combination involving Sahara and the other cited prior art references. As a consequence a detailed analysis of each one of these is unnecessary and applicant notes that there is no support for any of the rejections that are based upon the

Sahara reference and the combination of Figures 13B and 8B . Any further rejection of any dependent claims is respectfully traversed.

In responding to this Official Action, applicant requests that the Examiner specifically point out where any claimed prior art reference teaches applicants' claimed "guard ring" and also where any reference teaches that the combination of readout circuit and epitaxial layer are adapted to provide "a gradual knee in a current voltage characteristic." Absent both of these teachings, none of the cited prior art references support any rejection of the pending claims and any further rejection thereof is respectfully traversed.

Applicant also offers newly written claim 55 for consideration as being a slightly more detailed recitation of one preferred embodiment of the present invention. Consideration of newly written claim 55 is requested.

Having responded to all objections and rejections set forth in the outstanding Official Action, it is submitted that claims 1 through 4, 7 through 12, 38, 39, 41 through 55 are in condition for allowance and notice to that effect is respectfully solicited. In the event the Examiner is of the opinion that a brief telephone or personal interview will

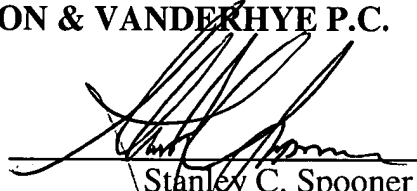
MARSHALL et al.
Appl. No. 09/923,341
November 24, 2003

facilitate allowance of one or more of these claims, the Examiner is respectfully
requested to contact applicants' undersigned representative.

Respectfully submitted,

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surfing \sər-ſɪŋ\ *n* (1917): the sport of riding the surf esp. on a surfboard

surf-perch \sər-ſərç\ *n* (1885): any of a family (Embiotocidae) of small or medium-sized viviparous fishes of shallow water along the Pacific coast of No. America

surge \sərj\ *vb* surged; **surging** [MF *sourge*, stem of *sourdre* to rise, *surge*, fr. *L. surgere* to go straight up, rise, fr. *sub-* up + *regere* to lead straight — more at SUB, RIGHT] *vi* (1511) 1: to rise and fall actively: TOSS (a ship *surging* in heavy seas) 2: to rise and move in waves or billows: SWELL 3: to slip around a windlass, capstan, or bits — used esp. of a rope 4: to rise suddenly to an excessive or abnormal value — used esp. of current or voltage 5: to move with a surge or in surges (felt the blood *surging* into his face — Harry Hervey) ~ *vi*: to let go or slacken gradually (as a rope) (~ a hawser to prevent its parting)

surge *n* (1520) 1: a swelling, rolling, or sweeping forward like that of a wave or series of waves (a ~ of interest) 2 a: a large wave or billow: SWELL b: (1) a series of such swells or billows (2) the resulting elevation of water level 3: the tapered part of a windlass barrel or a capstan 4 a: a movement (as a slipping or slackening) of a rope or cable b: a sudden jerk or strain caused by such a movement 5: a transient sudden rise of current in an electrical circuit

surgeon \sər-jən\ *n* [ME *surgen*, fr. AF, fr. OF *chirurgien*, fr. *chirurgie* surgery] (14c): a medical specialist who practices surgery

surgeon general *n*, *pl* **surgeons general** (1777): the chief medical officer of a branch of the armed services or of a federal or state public health service

surgeon's knot *n* (1813): any of several knots used in tying ligatures or surgical stitches; esp.: a reef knot in which the first knot has two turns — see KNOT illustration

surgery \sər-j(ə-rē)\ *n*, *pl* **geries** [ME *surgerie*, fr. MF *chirurgie*, *surgerie*, fr. *L. chirurgia*, fr. Gk *cheirourgia*, fr. *cheirourgos* surgeon, fr. *cheirourgos* working with the hand, fr. *cheir* hand + *ergon* work — more at CHIR-, WORK] (14c) 1: a branch of medicine concerned with diseases and conditions requiring or amenable to operative or manual procedures 2: alterations made as if by surgery (literary ~) 3 a *Brit*: a physician's or dentist's office b: a room or area where surgery is performed 4 a: the work done by a surgeon b: OPERATION

surgical \sər-jɪ-kəl\ *adj* [surgeon + -ical] (1770) 1 a: of or relating to surgeons or surgery (~ skills) b: used in or in connection with surgery (a ~ stocking) 2: following or resulting from surgery (~ fevers) — **surgically** \-k(ə-lē)\ *adv*

surjection \sər-jek-shən\ *n* [prob. fr. F *sur* over, on, onto + E *-jection* (as in *projection*) — more at SUR.] (1964): a mathematical function that is an onto mapping — compare BIJECTION, INJECTION

surjective \sər-jek-tɪv\ *adj* (1965): ONTO (a set of ~ functions)

surly \sər-lee\ *adj* **surlier**, -est [alter. of ME *sirly* lordly, imperious, fr. *sir*] (1573) 1 *obs*: ARROGANT, IMPERIOUS 2: irritably sullen and churlish in mood or manner: CRABBED 3: menacing or threatening in appearance (~ weather) *syn* see SULLEN — **surlyly** \-lē-lē\ *adv* — **surlyness** \-lē-nəs\ *n* — **surly** *adv*

surmise \sər-mɪz\, **sur-** *n* (1569): a thought or idea based on scanty evidence: CONJECTURE

surmise \sər-mɪz\ *vi* **surmised**; **sur-mis-ing** [ME *surmisen* to accuse, fr. MF *surmis*, pp. of *surmettre*, fr. *L. super* to throw on, fr. *super-* + *mittere* to send] (1700): to imagine or infer on slight grounds

surmount \sər-maʊnt\ *vi* [ME *surmounten*, fr. MF *surmonter*, fr. *sur-* + *monter* to mount] (14c) 1 *obs*: to surpass in quality or attainment: EXCEL 2: to rise superior to: OVERCOME (~ an obstacle) 3: to get to the top of: CLIMB 4: to stand or lie at the top of — **surmountable** \-ə-bəl\ *adj*

surmullet \sər-məl-ət\, **sur-** *n*, *pl* **surmullet** also **surmullet** [F *surmulet*] (ca. 1672): MULLET 2

sur-name \sər-nām\ *n* [ME, fr. *sur-* + *name*] (14c) 1: an added name derived from occupation or other circumstance: NICKNAME 2: the name borne in common by members of a family

surname *vi* (1512): to give a surname to

surpass \sər-pas\ *vi* [MF *surpasser*, fr. *sur-* + *passer* to pass] (1555) 1: to become better, greater, or stronger than: EXCEED 2: to go beyond: OVERSTEP 3: to transcend the reach, capacity, or powers of *syn* see EXCEED — **surpassable** \-ə-bəl\ *adj*

surpassing \sər-pas-ɪŋ\ *adj* (1580): greatly exceeding others: of a very high degree — **surpassingly** \-ɪŋ-lē\ *adv*

surplice \sər-plɪs\ *n* [ME *surplis*, fr. OF *surpliz*, fr. ML *superpellicium*, fr. *super-* + *pellicium* coat of skins, fr. *L. neut. of pellicius* made of skins, fr. *pellis* skin — more at FELL] (13c): a loose white outer ecclesiastical vestment usu. of knee length with large open sleeves

surplice *adj* (ca. 1897): having a diagonally overlapping neckline or closing (a ~ collar) (~ sweaters)

surplus \sər-ˈplʌs\ *n* [ME, fr. MF, fr. ML *superplus*, fr. *L. super-* + *plus* more — more at PLUS] (14c) 1 a: the amount that remains when use or need is satisfied b: an excess of receipts over disbursements 2: the excess of a corporation's net worth over the par or stated value of its capital stock — **surplus** *adj*

surplusage \sər-ˈplʌs-ɪj\ *n* (15c) 1: SURPLUS *la* 2 a: excessive or nonessential matter b: matter introduced in legal pleading which is not necessary or relevant to the case

surplus value *n* (1887): the difference in Marxist theory between the value of work done or of commodities produced by labor and the usu. subsistence wages paid by the employer

sur-print \sər-ˈprɪnt\ *vi* or *n* (ca. 1917): OVERPRINT

sur-pris-al \sər-ˈpri-zəl\ *n* (1591): the action of surprising: the state of being surprised

sur-prise \sər-ˈprɪz\ *n* [ME, fr. MF, fr. fem. of *surpris*, pp. of *surprendre* to take over, surprise, fr. *sur-* + *prendre* to take — more at PRIZE] (15c) 1 a: an attack made without warning b: a taking unawares 2: something that surprises 3: the state of being surprised: ASTONISHMENT

surprise also **sur-prize** *vb* **sur-prised**; **sur-pris-ing** *vi* (15c) 1: to attack unexpectedly; also: to capture by an unexpected attack 2 a: to take unawares b: to detect or elicit by a taking unawares 3: to strike with wonder or amazement esp. because unexpected ~ *vi*: to cause astonishment or surprise (nothing he might do with a basketball would ~ — *Current Biog.*) — **sur-priser** *n*

syn SURPRISE, ASTONISH, ASTOUND, AMAZE, FLABBERGAST mean to impress forcibly through unexpectedness. SURPRISE stresses causing an effect through being unexpected at a particular time or place rather than by being essentially unusual or novel; ASTONISH implies surprising so greatly as to seem incredible; ASTOUND stresses the shock of astonishment; AMAZE suggests an effect of bewilderment; FLABBERGAST may suggest thorough astonishment and bewilderment or dismay.

sur-pris-ing *adj* (1645): of a nature that excites surprise — **sur-pris-ing-ly** \-ˈpri-zɪŋ-lē\ *adv*

sur-ra \sər-ˈrɑ\ *n* [Marathi *sūra* wheezing sound] (ca. 1890): a severe Old World febrile and hemorrhagic disease of domestic animals that is caused by a flagellate protozoan (*Trypanosoma evansi*) and is transmitted by biting insects

sur-real \sə-ˈrē-əl\, -ˈri-əl also -ˈrā-əl\ *adj* [back-formation fr. *surrealism*] (1943) 1: having the intense irrational reality of a dream 2: SURREALISTIC — **sur-really** \-ē-lē\ *adv*

sur-re-al-ism \sə-ˈrē-ə-lɪz-əm\, -ˈri-əl also -ˈrā-əl\ *n* [F *surréalisme*, fr. *sur-* + *réalisme* realism] (1925): the principles, ideals, or practice of producing fantastic or incongruous imagery or effects in art, literature, film, or theater by means of unnatural juxtapositions and combinations — **sur-re-al-ist** \-ləst\ *n* or *adj*

sur-re-al-istic \-rē-ə-lɪs-tɪk\, -ˈri-əl also -ˈrā-əl\ *adj* (1925) 1: of or relating to surrealism 2: having a strange dreamlike atmosphere or quality like that of a surrealist painting — **sur-re-al-ist-ic-ally** \-tɪ-k(ə-lē)\ *adv*

sur-re-but-ter \sər-ˈrɪ-ˈbət-ər\ *n* (1601): the reply in common law pleading of a plaintiff to a defendant's rebutter

sur-re-join-der \-rɪ-ˈjoin-dər\ *n* (1542): the reply in common law pleading of a plaintiff to a defendant's rejoinder

sur-ren-der \sə-ˈren-dər\ *vb* -dered; -der-ing \-d(ə-rɪŋ\ [ME *surrenderen*, fr. MF *surrendre*, fr. *sur-* + *rendre* to give back, yield — more at RENDER] *vi* (15c) 1 a: to yield to the power, control, or possession of another upon compulsion or demand (~ed the fort) b: to give up completely or agree to forgo esp. in favor of another 2 a: to give (oneself) up into the power of another esp. as a prisoner b: to give (oneself) over to something (as an influence or course of action) ~ *vi*: to give oneself up into the power of another: YIELD *syn* see RELINQUISH

surrender *n* (15c) 1 a: the action of yielding one's person or giving up the possession of something esp. into the power of another b: the relinquishment by a patentee of his rights or claims under a patent c: the delivery of a principal into lawful custody by his bail — called also **surrender by bail** d: the voluntary cancellation of the legal liability of an insurance company by the insured and beneficiary for a consideration e: the delivery of a fugitive from justice by one government to another 2: an instance of surrendering

sur-rep-ti-tious \sər-əp-ˈtɪʃ-əs\, -sə-ˈrəp-, -sə-ˈrep-*adj* [ME, fr. *L. surrepticius*, fr. *surreptus*, pp. of *surripere* to snatch secretly, fr. *sub-* + *rapere* to seize — more at RAPID] (15c) 1: done, made, or acquired by stealth: CLANDESTINE 2: acting or doing something clandestinely: STEALTHY *syn* see SECRET — **sur-rep-ti-tiously** *adv*

sur-rey \sər-ē\, -sə-ˈrē\ *n*, *pl* **surreys** [Surrey, England] (ca. 1891): a four-wheel two-seated horse-drawn pleasure carriage

sur-ro-gate \sər-ə-ˈɡāt\, -sə-ˈrə-*vi* -gated; -gating \L *surrogatus*, pp. of *surrogare* to choose in place of another, substitute, fr. *sub-* + *rogare* to ask — more at RIGHT] (1533): to put in the place of another: a: to appoint as successor, deputy, or substitute for oneself b: SUBSTITUTE

sur-ro-gate \-gāt-, -gāt\ *n*, often *attrib* (1603) 1 a: one appointed to act in place of another: DEPUTY b: a local judicial officer in some states (as New York) who has jurisdiction over the probate of wills, the settlement of estates, and the appointment and supervision of guardians 2: one that serves as a substitute

sur-round \sə-ˈraʊnd\ *vi* [ME *surrounden* to overflow (influenced by *round*), fr. MF *surround*, fr. LL *superundare*, fr. *L. super-* + *unda* wave — more at WATER] (ca. 1616) 1 a: (1) to enclose on all sides: ENVELOPE (~ed by a crowd of people — Jonathan Swift) (2) to enclose so as to cut off communication or retreat: INVEST b: to form or be a member of the entourage of (~ed by flatterers who ~ the king) c: to constitute part of the environment of (~ed by luxury) d: to extend around the margin or edge of: ENCIRCLE (a wall ~s the old city) 2: to cause to be surrounded by something (~ed himself with able advisers)

surround *n* (ca. 1891): something (as a border or ambient environment) that surrounds (from urban centre to rural — Emrys Jones)

sur-round-ings \sə-ˈraʊn-dɪŋz\ *n* *pl* (1861): the circumstances, conditions, or objects by which one is surrounded: ENVIRONMENT

sur-roy-al \sər-ˈrɔɪ-əl\ *n* [ME *surryal*, fr. *sur-* + *royal* royal antler] (15c): one of the terminal times above the royal antler of a large deer (as a stag) usu. grown by four years of age

sur-sum \sə-ˈsʌm\, -ˈsʌm\ *n* [LL, (lift) up (your) hearts; fr. the opening words] (1559) 1 often *cap* S&C: a versicle that in traditional eucharistic liturgies exhorts the faithful to enthusiastic worship 2: something inspiring

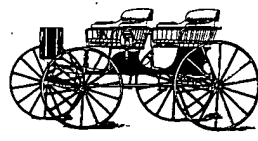
sur-tax \sər-ˈtaks\ *n* (1881) 1: an extra tax or charge 2: a graduated income tax in addition to the normal income tax imposed on the amount by which one's net income exceeds a specified sum

sur-tout \sər-ˈtū\, -sər-*n* [F, fr. *sur* over (fr. *L. super*) + *tout* all, fr. *L. totus* whole — more at OVER] (1686): a man's long close-fitting overcoat

sur-veil \sər-ˈvā(ə)\ *vi* **sur-veilled**; **sur-veil-ing** [back-formation fr. *surveillance*] (1966): to subject to surveillance

sur-veil-lance \sər-ˈvā-ləns\ also -ˈvā-ləns\ *n* [F, fr. *surveiller* to watch over, fr. *sur-* + *veiller* to watch, fr. *L. vigilare*, fr. *vigil* watchful — more at VIGIL] (1802): close watch kept over someone or something (as by a detective); also: SUPERVISION

sur-veil-lant \-vā-lənt\ also -ˈvā-lənt or -ˈvā-ənt\ *n* (1819): one that exercises surveillance



surrey